What is claimed is:

1. A method for transmitting control information and user traffic signals from a first base station to a plurality of mobile stations in a code division multiple access communication system comprising the steps of:

coding control information using a spread spectrum code unique to control information to form a calling channel signal;

coding each user traffic signal using a spread spectrum code unique to each traffic signal;

adding said calling channel signal and said coded traffic signal using predetermined weighting factors to obtain a composite signal;

modulating said composite signal on a radio frequency carder to form a radio frequency signal;

transmitting said radio frequency signal to said plurality of said mobile stations;

receiving said radio frequency signal at at least one of said mobile stations:

decoding said received signal in said mobile station to extract said control information wherein said control information is used by said mobile station to determine if said mobile station is being called and to determine a phase of the calling channel signal; and

decoding said radio frequency signal in said mobile station using said phase of the calling channel signal to extract traffic information intended for said mobile station.

2. A method for transmitting control information and user traffic signals according to claim 1, wherein said spread spectrum coding is orthogonal block encoding using scrambled Walsh-Hadamard codewords.

3. A method for transmitting control information and user traffic signals according to claim 1, wherein said calling channel signal is the largest signal in said composite signal.

4. A method for transmitting control information and user traffic signals according to claim 1, wherein specific relative phase of each of the signals within said composite signal alternate 90° when ordered according to signal strength.

5. A method for transmitting control information and user traffic signals according to claim 1, wherein said modulation is by quadrature phase shift keying.

6. A method for transmitting control information and user traffic signals according to claim 1, in which said modulation is by offset quadrature phase shift keying.

7. A method for transmitting control information and user traffic signals according to claim 1, in which said modulation is by quadrature amplitude modulation.

8. A method for transmitting control information and user traffic signals according to claim 1, in which said modulation is by offset quadrature amplitude modulation.

9. A method for transmitting control information and user traffic signals according to claim 1, wherein said decoding of said radio frequency signal in said mobile station is carded out using a fast Walsh transform computer.

10. A method for transmitting control information and user traffic signals according to claim 1, wherein said decoded control signal is extracted from the radio frequency signal prior to decoding traffic information.

11. A method for transmitting control information and user traffic signals according to claim 1, wherein said control information includes information about surrounding base stations.

12. A method for transmitting control information and user traffic signals according to claim 1, wherein said control information carries information for a specific group of mobile stations only at predetermined times.

13. A method for transmitting control information and user traffic signals according to claim 12, wherein said predetermined times depend upon a mobile identification number for each of said mobile stations.

14. A method for transmitting control information and user traffic signals according to claim 12, wherein said mobile stations reduces processing to conserve power at times other that said predetermined times.

15. A method for transmitting control information and user traffic signals according to claim 1, wherein said decoding of said radio frequency signal in said mobile station is performed by a non-coherent RAKE receiver.

16. A method for transmitting control information and user traffic signals according to claim 1, wherein said decoding of said radio frequency signals in said mobile station is performed by a coherent RAKE receiver.

17. A method for transmitting control information and user traffic signals according to claim 16, wherein coefficients for RAKE tap weighting used during traffic signal decoding are derived from correlations calculated during calling channel decoding.

18. A method for transmitting control information and user traffic signals according to claim 1, wherein said mobile stations receive more than one base station signal on the same frequency.

19. A method for transmitting control information and user traffic signals according to claim 18, wherein said mobile stations process calling channel signals for more than one base station.

20. A method for transmitting control information and user traffic signals according to claim 18, wherein said mobile stations process traffic signals for more than one base station.

21. A method for transmitting control information and user traffic signals according to claim 19, wherein said mobile stations use relative calling channel signal strengths determined by decoding different base station signals to ascertain the best base station to communication with.

22. A method for transmitting control information and user traffic signals according to claim 18, wherein each of said mobile stations reports signal strengths determined by decoding different base station signals to a base station transmitting traffic for that mobile station.

23. A method for transmitting control information and user traffic signals according to claim 22, wherein a base station is selected to transmit traffic to said mobile station based upon said reports of signal strength.

24. An apparatus for transmitting control information and user traffic signals from a first base station to a plurality of mobile stations in a code division multiple access communication system, comprising:

first coding means for coding control information using a spread spectrum code unique to control information to form a calling channel signal;

a second coding means for coding each user traffic signal using a spread spectrum code unique to each traffic signal;

summation means for adding said calling channel signal and said coded traffic signal using predetermined weighting factors to obtain a composite signal;

modulation means for modulating said composite signal on a radio frequency carrier to form a radio frequency signal;

transmitting means for transmitting said radio frequency signal to said plurality of said mobile stations;

receiving means for receiving said radio frequency signal at at least one of said mobile stations;

decoding means for decoding said received signal at said mobile station to extract said control information, wherein said control information is used by said mobile station to determine if said mobile station is being called and to determine a phase of the calling channel signal; and

second decoding means for decoding said radio frequency signal in said mobile station using said phase of the calling channel signal to extract traffic information intended for said mobile station.

25. An apparatus according to claim 24, wherein said second decoding means includes extraction of a control signal from said radio frequency signal prior to decoding of traffic information.

26. An apparatus according to claim 24, wherein said second decoding means uses a non-coherent RAKE receiver.

27. An apparatus according to claim 24, wherein said second decoding means uses a coherent RAKE receiver.

28. An apparatus according to claim 27, wherein coefficients for RAKE tap weighting used during traffic signal decoding are derived from correlations calculated during calling channel decoding.

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29. A method for transmitting control information and user traffic signals from a first base station to a plurality of mobile stations in a code division multiple access communication system comprising the steps of:

coding control information using a spread spectrum code unique to control information to form a calling channel signal,

wherein said control information carries information for a specified group of mobile stations only at predetermined times;

coding each user traffic signal using a spread spectrum code unique to each traffic signal;

adding said calling channel signal and said coded traffic signal to obtain a composite signal;

modulating said composite signal on a radio frequency carrier to form a radio frequency signal;

transmitting said radio frequency signal to said plurality of said mobile stations;

receiving said radio frequency signal at at least one of said mobile stations;

decoding said received signal in said mobile station to extract said control information; and

decoding said radio frequency signal in said mobile station to extract traffic information intended for said mobile station.

30. A method for paging a mobile station in a code division multiple access communication system comprising the steps of:

assigning said mobile station to a subgroup of data blocks to be transmitted on a calling channel;

encoding said subgroup of data blocks using a spread spectrum code assigned to said calling channel; and

transmitting a paging message to said mobile station in only said subgroup.

31. The method of claim 30, wherein a duration of each of said data blocks is equal to a duration of a speech coder's analysis period.

32. The method of claim 30, wherein said step of assigning further comprises the step of:

using a mobile identification code associated with said mobile station to determine said assigned subgroup.

33. A code division multiple access communication system for transmitting control information and user traffic signals from a first base station to a plurality of mobile stations comprising:

means for coding control information using a spread spectrum code unique to control information to form a calling channel signal,

wherein said control information means carries information for a specified group of mobile stations only at predetermined times;

means for coding each user traffic signal using a spread spectrum code unique to each traffic signal;

means for adding said calling channel signal and said coded traffic signal to obtain a composite signal;

means for modulating said composite signal on a radio frequency carrier to form a radio frequency signal;

means for transmitting said radio frequency signal to said plurality of said mobile stations;

means for receiving said radio frequency signal at at least one of said mobile stations;

means for decoding said received signal in said mobile station to extract said control information; and

means for decoding said radio frequency signal in said mobile station to extract traffic information intended for said mobile station.

34. A code division multiple access communication system for paging a mobile station comprising:

means for assigning said mobile station to a subgroup of data blocks to be transmitted on a calling channel;

means for encoding said subgroup of data blocks using a spread spectrum code

assigned to said calling channel; and

means for transmitting a paging message to said mobile station in only said subgroup.

35. The system of claim 34, wherein a duration of each of said data blocks is equal to a duration of a speech coder's analysis period.

36. The system of claim 34, wherein said means for assigning further comprises means for using a mobile identification code associated with said mobile station to determine said assigned subgroup.

Sub B3

add a1

add B4

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